

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**List of Claims:**

1. (currently amended) A method to control access to logical volumes disposed in an information storage and retrieval system, comprising the steps of:

    providing an information storage and retrieval system comprising a plurality of logical volumes, wherein said information storage and retrieval system is owned by a storage system owner;

    providing a plurality of host computers, wherein each of said plurality of host computers is capable of communicating with said information storage and retrieval system, wherein at least two of said plurality of host computers are owned by different host computer owners, and wherein those different host computer owners differ from said storage system owner;

    forming by said storage system owner (N) host computer groups, wherein (N) is greater than or equal to 1;

    assigning by said storage system owner each of said plurality of host computers to one of the (N) host computer groups;

    forming by said storage system owner (N) logical volume groups;

    assigning by said storage system owner one or more of said plurality of logical volumes to the (i)th logical volume group, wherein (i) is greater than or equal to 1 and less than or equal to (N), and wherein any logical volumes not assigned to any of the (N) logical volume groups

remain unassigned;

maintaining a database associating the (i)th host computer group with the (i)th logical volume group;

permitting each of said one or more host computers assigned to the (i)th host computer group to access each logical volume comprising said (i)th logical volume group;

wherein each of said plurality of host computers assigned to (i)th host computer group is not assigned to any other of the (N) host computer groups, and wherein each of said logical volumes assigned to the (i)th logical volume group is not assigned to any other of the (N) logical volume groups.

2. (original) The method of claim 1, wherein one or more of said (N) host computer groups are owned by a first person, and wherein one or more of said (N) host computer groups are owned by a second person, wherein said first person differs from said second person.

3. (original) The method of claim 1, further comprising the step of providing a storage area network, wherein said storage area network is capable of communicating with said information storage and retrieval system and with each of said plurality of host computers.

4. (original) The method of claim 1, further comprising the steps of:  
forming a plurality of unique identifiers;  
assigning a different one of said plurality of unique identifiers to each of said plurality of host computers;

associating in said database each of said plurality of unique identifiers with one of said (N) host computer groups.

5. (original) The method of claim 4, further comprising the steps of:

requesting by one of said plurality of host computers to access a designated logical volume;

determining that said requesting host computer is assigned to the (j)th host computer group, wherein (j) is greater than or equal to 1 and less than or equal to (N);

determining if said designated logical volume is assigned to the (j)th logical volume group;

operative if said designated logical volume is assigned to the (j)th logical volume group, permitting said requesting host to access said designated volume;

operative if said designated logical volume is not assigned to the (j)th logical volume group, denying said requesting host access to said designated volume.

6. (original) The method of claim 5, further comprising the steps of:  
establishing the unique identifier assigned to said requesting host computer;  
determining that the requesting host computer is assigned to the (j)th logical volume group.

7. (original) The method of claim 1, further comprising the steps of:  
receiving a request to assign one or more host computers to the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);  
assigning said one or more host computers to the (k)th logical volume group.

8. (original) The method of claim 1, further comprising the steps of:  
receiving a request to unassign one or more host computers from the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);  
unassigning said one or more host computers to the (k)th logical volume group.

9. (original) The method of claim 1, further comprising the steps of:
  - receiving a request to unassign one or more logical volumes from the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);
    - unassigning said one or more logical volumes from the (k)th logical volume group.
10. (original) The method of claim 1, further comprising the steps of:
  - receiving a request to assign one or more logical volumes to the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);
    - assigning said one or more logical volumes to the (k)th logical volume group;
    - assigning identifiers to said one or more logical volumes newly-assigned to the (k)th logical volume group.

11. (currently amended) An information storage and retrieval system comprising a computer readable medium having computer readable program code disposed therein to control access to logical volumes disposed therein, wherein said information storage and retrieval system is owned by a storage system owner, wherein said information storage and retrieval system comprises a plurality of logical volumes, and wherein a plurality of host computers is capable of communicating with said information storage and retrieval system, wherein at least two of said plurality of host computers are owned by different host computer owners, and wherein those different host computer owners differ from said storage system owner, the computer readable program code comprising a series of computer readable program steps to effect:

forming (N) host computer groups, wherein (N) is greater than or equal to 1;  
assigning each of said plurality of host computers to one of the (N) host computer

groups;

forming (N) logical volume groups;

assigning one or more of said plurality of logical volumes to the (i)th logical volume group, wherein (i) is greater than or equal to 1 and less than or equal to (N), and wherein any logical volumes not assigned to any of the (N) logical volume groups remain unassigned;

maintaining a database associating the (i)th host computer group with the (i)th logical volume group;

permitting each of said one or more host computers assigned to the (i)th host computer group to access each logical volume comprising said (i)th logical volume group;

wherein each of said plurality of host computers assigned to (i)th host computer group is not assigned to any other of the (N) host computer groups, and wherein each of said logical volumes assigned to the (i)th logical volume group is not assigned to any other of the (N) logical volume groups.

12. (previously presented) The information storage and retrieval system of claim 11, wherein one or more of said (N) host computer groups are owned by a first person, and wherein one or more of said (N) host computer groups are owned by a second person, wherein said first person differs from said second person.

13. (previously presented) The information storage and retrieval system of claim 11, wherein a storage area network is capable of communicating with each of said plurality of host computers, said computer readable program code further comprising a series of computer readable program steps to effect receiving information from said storage area network.

14. (previously presented) The information storage and retrieval system of claim 11,

said computer readable program code further comprising a series of computer readable program steps to effect:

forming a plurality of unique identifiers;

assigning a different one of said plurality of unique identifiers to each of said plurality of host computers;

associating in said database each of said plurality of unique identifiers with one of said (N) host computer groups.

15. (previously presented) The information storage and retrieval system of claim 14, said computer readable program code further comprising a series of computer readable program steps to effect:

receiving from one of said plurality of host computers a request to access a designated logical volume;

determining that said requesting host is assigned to the (j)th host computer group, wherein (j) is greater than or equal to 1 and less than or equal to (N);

determining if said designated logical volume is assigned to the (j)th logical volume group;

operative if said designated logical volume is assigned to the (j)th logical volume group, permitting said requesting host to access said designated volume;

operative if said designated logical volume is not assigned to the (j)th logical volume group, denying said requesting host access to said designated volume.

16. (previously presented) The information storage and retrieval system of claim 15, said computer readable program code further comprising a series of computer readable program

steps to effect:

establishing the unique identifiers assigned to said requesting host computer;

determining using said database and said unique identifiers that the requesting host computer is assigned to the (j)th logical volume group.

17. (previously presented) The information storage and retrieval system of 11, said computer readable program code further comprising a series of computer readable program steps to effect:

receiving a request to assign one or more host computers to the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);

assigning said one or more host computers to the (k)th logical volume group.

18. (previously presented) The information storage and retrieval system of claim 11, said computer readable program code further comprising a series of computer readable program steps to effect:

receiving a request to unassign one or more host computers from the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);

unassigning said one or more host computers to the (k)th logical volume group.

19. (previously presented) The information storage and retrieval system of claim 11, said computer readable program code further comprising a series of computer readable program steps to effect:

receiving a request to unassign one or more logical volumes from the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);

unassigning said one or more logical volumes from the (k)th logical volume group.

20. (previously presented) The information storage and retrieval system of claim 11, said computer readable program code further comprising a series of computer readable program steps to effect:

receiving a request to assign one or more logical volumes to the (k)th logical volume group, wherein (k) is greater than or equal to 1 and less than or equal to (N);

assigning said one or more logical volumes to the (k)th logical volume group;

assigning identifiers to said one or more logical volumes newly-assigned to the (k)th logical volume group.

21. (currently amended) A computer program product embodied in an information storage medium, said computer program product being usable with a programmable computer processor to control access to logical volumes disposed in an information storage and retrieval system, wherein said information storage and retrieval system is owned by a storage system owner, wherein said information storage and retrieval system comprises a plurality of logical volumes, wherein a plurality of host computers is capable of communicating with said information storage and retrieval system, and wherein at least two of said plurality of host computers are owned by different host computer owners, and wherein those different host computer owners differ from said storage system owner, comprising:

computer readable program code which causes said programmable computer processor to form (N) host computer groups, wherein (N) is greater than or equal to 1;

computer readable program code which causes said programmable computer processor to assign each of said plurality of host computers to one of the (N) host computer groups;

computer readable program code which causes said programmable computer processor

to form (N) logical volume groups;

computer readable program code which causes said programmable computer processor to assign one or more of said plurality of logical volumes to the (i)th logical volume group,  
wherein (i) is greater than or equal to 1 and less than or equal to (N), wherein any logical  
volumes not assigned to any of the (N) logical volume groups remain unassigned;

computer readable program code which causes said programmable computer processor to maintaining a database associating the (i)th host computer group with the (i)th logical volume group;

computer readable program code which causes said programmable computer processor to permit each of said one or more host computers assigned to the (i)th host computer group to access each logical volume comprising said (i)th logical volume group.

22. (original) The computer program product of claim 21 wherein one or more of said (N) host computer groups are owned by a first person, and wherein one or more of said (N) host computer groups are owned by a second person, wherein said first person differs from said second person.

23. (original) The computer program product of claim 21 wherein a storage area network is capable of communicating with each of said plurality of host computers, further comprising computer readable program code which causes said programmable computer processor to receive information from said storage area network.

24. (original) The computer program product of claim 21, further comprising:  
computer readable program code which causes said programmable computer processor to form a plurality of unique identifiers;

computer readable program code which causes said programmable computer processor to assign a different one of said plurality of unique identifiers to each of said plurality of host computers;

computer readable program code which causes said programmable computer processor to associate in said database each of said plurality of unique identifiers with one of said (N) host computer groups.

25. (original) The computer program product of claim 21, further comprising:

computer readable program code which causes said programmable computer processor to receive from one of said plurality of host computers a request to access a designated logical volume;

computer readable program code which causes said programmable computer processor to determine that said requesting host is assigned to the (j)th host computer group, wherein (j) is greater than or equal to 1 and less than or equal to (N);

computer readable program code which causes said programmable computer processor to determine if said designated logical volume is assigned to the (j)th logical volume group;

computer readable program code which, if said designated logical volume is assigned to the (j)th logical volume group, causes said programmable computer processor to permit said requesting host to access said designated volume;

computer readable program code which, if said designated logical volume is not assigned to the (j)th logical volume group, causes said programmable computer processor to deny said requesting host access to said designated volume.

26. (original) The computer program product of claim 25, further comprising:

computer readable program code which causes said programmable computer processor to establish the unique identifier assigned to said requesting host computer; computer readable program code which causes said programmable computer processor to determine using database and said unique identifier that the requesting host computer is assigned to the (j)th logical volume group.

CHANDLER & UDALL, LLP  
4801 E. BROADWAY BLVD  
Tucson, Arizona 85711

TEL 520-741-7636  
FAX 520-746-8114